Title: Minimum inhibitory concentrations of 12 different antibiotics against MBL producing Pseudomonas aeruginosa by Etest method in northwest of Iran

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Abstract: Background & Objectives: Pseudomonas aeruginosa is an important nosocomial pathogen responsible for a wide range of infections, particularly in burn and intensive care units. The increasing prevalence of multiple drug-resistant organisms is a global health problem, because MDR P. aeruginosa infections are difficult to treat due to limited choice of drugs for clinical use. MBL producing P. aeruginosa are of great concern as the most fearsome mechanisms of drug resistance in bacteria, because MBLs can hydrolyze all β-lactam antibiotics except monobactams. This study was designed in order to determine the minimum inhibitory concentrations of 12 routine antibiotics against P. aeruginosa isolates by Etest strips.

Materials & Methods: A total of 104 isolates of P. aeruginosa were collected from two university hospitals in Tabriz and Urmia during September 2007 to October 2008. Identification of isolated bacteria was performed by using standard microbiological tests. MBL production and MICs were determined by using Etest strips according to recommendations of manufacturer. P. aeruginosa ATCC 27853 was used as a control for antimicrobial susceptibility testing. The results were analyzed based on EUCAST breakpoint system.

Results: Determination of MICs of different antibiotics against 48 MBL positive P. aeruginosa isolates by Etest method revealed that P. aeruginosa isolates were fully resistant to the most of antibiotics, and colistin was the most effective antibiotic (more than 80% of isolates were sensitive to colistin). Results of MICs (Mean MIC, MIC50, MIC90 and Sensitive, Intermediate, Resistance percentages) against 12 antibiotics will be presented.

Conclusion: We found that colistin was the most effective antibiotic which is followed by imipenem, but a high prevalence of antimicrobial resistance against most of the tested antibiotics were seen among P. aeruginosa isolates. This situation emphasizes the need for strict consideration in implementation of antibiotics in clinical settings and also the importance of antibiotic surveillance programs.

Keywords: Pseudomonas aeruginosa, Antimicrobial resistance, Etest method.

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